Lithographic Abstracts are issued monthly, to make it easier for LTF members to keep abreast of technical developments in the graphic arts, but particularly in lithography. Many more abstracts are prepared and filed. Over 200 periodicals are abstracted monthly.

These abstracts of important current articles, patents, and books are compiled by the LTF Research Department. They represent statements made by the authors and do not express the opinions of the abstractors or of LTF.

If the title of the abstract is not marked with an asterisk (*), LTF can supply photocopies of the original article. When you place an order for photocopies, please give the COMPLETE description of the articles you want-TITLE, AUTHOR, PUBLICATION, DATE, and PAGE NUMBERS.

The charge for photocopies is one dollar per page (check abstract for number of pages) plus four cents per page for postage. Postage charges for orders from places other than Canada and the United States or its territories and possessions is fifteen cents per page of photocopies. (These are sent air mail.) Orders from companies or individuals who are not members of LTF cannot be filled until payment is received.

Some of the abstracts are from abstract journals. The titles of these are marked with an asterisk (*). LTF cannot furnish photocopies of these articles and has no further information than that contained in the source that is named. If you want copies of U.S. Patents, write direct to the Commissioner of Patents, Washington 25, D.C. Send twenty-five cents for each patent desired. Make checks or money orders payable to "Treasurer of the United States". British patents may be obtained for forty-five cents from the Patent Office, 25, Southampton Buildings, London, W.C. 2, England, or, as is the case with all foreign patents, they may be obtained as photoprints from the U.S. Patent Office, Washington 25, D.C.

LTF also has printed lists of (1) "Periodicals Abstracted by the Research Department" and (2) "Books of Interest to Lithographers". These are available for twenty-five cents each in coin or U.S. stamps. All inquiries concerning these lists and photocopies of original articles (not marked with an asterisk) should be addressed to: Lithographic Technical Foundation, Inc., Research Department, 1800 So. Prairie Ave., Chicago 16, Ill.

Additional LTF services include a broad range of books, technical bulletins, and course and training materials of vital importance to all in the lithographic industry--from apprentices to top technical, production, sales, and management personnel.

Information on LTF publications, audio-visuals, the LTF Color Chart, Sensitivity Guide, and LTF instruments, can be obtained from the Lithographic Technical Foundation, 131 East 39th Street, New York 16, N.Y.

Requests for information about seminars, technical problems, literature searches, and technical and research consulting services should be addressed to LTF Research Department.

LITHOGRAPHIC ABSTRACTS, MARCH 1961

PHOTOGRAPHY, TONE & COLOR CORRECTION

655.302

A SCANNER FOR MAKING PHOTOGRAPHIC MASKS. J. H. Worth; D. J. Howe; and R. E. Maurer. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 157-66, 270-71, 12 pages. The scanner described is a research instrument which makes color correction masks from a set of three separation negatives. It was designed to improve present masking methods, and to investigate new ones. For these purposes, it possesses many advantages over other scanners, and over purely manual methods. The three negatives are revolved around a fluorescent tube, and the electric signals thus generated are logged to produce three voltages that are proportional to the density. These signals are operated upon by relatively simple analog-computer circuits to produce any of a large variety of masks. The resulting signal, representing the density of a specific mask, is effectively anti-logged by an amplifier, glowlamp, and film combination as it is exposed on the end of the same cylinder which holds the negatives. Since it does not carry picture detail, this machine can be much less complicated than scanners which do, and since it scans negatives rather than transparencies, it does not need to cover as large a density range. Besides improving present masking techniques and devising new ones, this instrument can perform some jobs which are otherwise complicated such as selective- or area-masking and 100 per cent undercolor removal.

771.317

THE PHOTO MODIFICATION CAMERA. Alvin Polland. Printing and Graphic Arts, No. 13, November 1960, pp. 16-18,20,29 (5 pages). A comprehensive explanation, with practical hints, of what can be done with this type of camera, and how this affects both art work and printing.

771.317

MODERN TRENDS IN GRAPHIC ARTS CAMERAS. Frank H. Smith. The Lithographer and Offset Printer 56, No. 11, November 1960, pp. 32-34 (3 pages). A recent trend is to break away from the highly complicated universal application darkroom cameras toward simpler cameras, a trend coming from the cameras made for small offset operations. Gallery and darkroom cameras are compared. Vertical cameras and automatic focusing devices are described. 2 Illustrations.

655.302

A METHOD OF STANDARDIZING COLOR SEPARATIONS. Mel Mark. National Lithographer 67, No. 11, November 1960, pp. 47, 118 (2 pages). Description of the use of the enlarger in color separations. Many operational short-cuts are claimed.

655.302

AN ANALYSIS OF MASKING ERRORS IN SINGLE-STAGE AND TWO-STAGE MASKING. F. Pollak. Printing Technology, Vol. IV, No. 2, December 1960, pages 93-115, 13 pages. The Actinic densities of the British Standard letterpress inks and of their over-laps to the Kodak P. 900 plate through Wratten tricolour filters were determined experimentally, and from these were deduced the densities that would be obtained in separation negatives and positives at gamma 1. Using the blue separation as example, the mask densities in the colour patches that would ensure full correction were calculated, and it is shown that it is not possible to correct satisfactorily both the "wanted" and "unwanted" colours (colours in which yellow is wanted and not wanted respectively) by a single-filter, single-stage mask. This failing is explained in terms of additivity failure, and it is further demonstrated how two-stage masking can be made to overcome it. 5 Diagrams, 4 tables, 12 references, discussion.

655.302

MAINTENANCE PAYS OFF HANDSOMELY: HERE'S WHERE TO LOOK FOR TROUBLE. Herbert P. Paschel. Photo Methods For Industry - Section Two - November 1960, pp. 12-13 (2 pages). Suggestions are given on the care and maintenance of graphic arts plant camera room equipment. Specific points on lens cleaning and exposure integrator checking are given. The use of a foot-candle meter for checking illumination is urged.

655.302

FIRST COLORGRAPH SCANNER IN OPERATION IN UNITED STATES. Anon. National Lithographer 67, No. 10, October 1960, pp. 71, 119 (2 pages). Collier Photo Engraving Co., Inc., New York has installed the first of Dr. Hell's Colorgraph Electronic Scanners in the U. S. Used for letterpress, offset, or gravure; from any type or size of copy, produces three or four fully corrected negatives or positives at a price that opens color printing to fields where previously time and cost factors were prohibitive. Equipment and operation are described. A color corrected set can be produced in less than two hours. 2 Illustrati

535.6

COMPUTER FOR THE CONVERSION OF TRISTIMULUS VALUES TO TRICHROMATIC COEFFICIENTS. Bruce W. Preston. Journal of the Optical Society of America 50, No. 11, November 1960, pp. 1117-1118 (2 pages). Brief description and wiring diagram given. 2 Illustrations.

535.6

COLOR APPEARANCE SPECIFICATION WITH ADAPTATION TO DAYLIGHT AND TUNGSTEN ILLUMINATION. R. W. Burnham and R. J. Malach. Journal of the Optical Society of America 50, No. 11, November 1960, pp. 1071-1074 (4 pages). The Glasser et al. version of an Adams-type color space has been evaluated for its capacity to take into account chromatic adaptation effects as they affect color appearance. The study was concerned specifically with adaptation to CIE sources C and A. The data of Burnham, Evans, and Newhall on matching colors under adaptation to these sources provided a basis for the test. It was concluded that color spaces of this type must be used with caution as a means of representing color appearance when adaptation to an illuminant other than source C is involved. 2 Illustrations - 19 references.

655.302

THE SCOPE AND FUNCTION OF THE HELL COLORGRAPH ELECTRONIC SCANNER. D. J. Kyte. The British Printer 73, No. 11, November 1960, pp. 121-123 (3 pages). This scanner is described briefly. It produces four color corrected continuous tone separations from incorrected camera separations. Its operation is described briefly based on nearly a year's use. Initial settings are based on gray scales included in the camera settings. 2 Illustrations.

655.312

HOW THE BOSTON GLOBE HANDLES COLOR. James Krigman. New England Printer & Lithographer 23, No. 10, November 1960, pp. 54-55 (2 pages). Explanation of how this paper handles ROP color is summarized in 6 points. (1) Insist on good, readable copy; (2) Use easy-to-read instructions; (3) Fasten overlays and furnish good roughs; (4) Do not rule crop marks through original copy; (5) Do not leave erasure refuse and rubber cement on copy; (6) Scale all copy correctly.

771.317

TYPES AND CHARACTERISTICS OF MODERN PROCESS CAMERAS. F. G. Wallis. The British Printer 73, No. 11, November 1960, pp. 124-127 (4 pages). Size, rigidity and parallelism are specialized requirements of the process camera, also allowance must be made for screening. Cameras are divided into horizontal and vertical groups. Some new developments include roll film cameras, the use of enlargers in color work and the Multichrom camera for masking. Five cameras are illustrated.

655.302

THE RELATION OF THE CONTACT SCREEN TO PICTURE QUALITY. R. E. Maurer. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 121-32, 265-67, 15 pages. The function of the contact screen in making halftones is described in terms of the light-intensity distribution pattern produced on the emulsion. The relation of this pattern to tone reproduction is explained. The color and dot-shape properties of contact screens are discussed. Also, the effects of auxiliary exposures are shown, and a number of problems encountered in using screens are discussed. The design of screens for making halftone negatives and positives is considered. 5 references, 17 charts or diagrams.

655.312

TONE-REPRODUCTION IN HALFTONE-ENGRAVING. G.M.W. Laseur; H. Ter Haar; W. M. DuPont. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 109-20, 263-65, 15 pages. Several steps in the production of halftone engravings lead to distortion in the tone scale so that laborious and time-consuming corrections are necessary. The Dutch Institute for Printing and Allied Industries set up an inquiry in Dutch photo-engravers' shops to locate these tone-distortions and to estimate the extent of their influence. It is shown that production methods are rather unreliable, especially in halftone photography. Further that at some stages of the process people are used to a considerable quantity of superfluous work; e.g. deep-etching of halftone blocks is not necessary; re-etching is often extended far too much. Relations are derived between tone-values in several phases of the process. A few suggestions for improvements are made. 2 references, 14 charts, 5 tables.

PLANOGRAPHIC PRINTING PROCESSES

655.325 : 778.1

ELECTROPHOTOGRAPHIC COPIER DEVELOPED AFTER FOUR YEARS OF RESEARCH. Anon. Reproductions Review 10, No. 11, November 1960, p. 40 (1 page). Brief illustrated description of APECO electrostatic photocopier based on RCA Electrofax system. Copies produced can be used as lithographic masters for producing up to 200 copies. 2 Illustrations.

655.325

THE PRODUCTION OF LITHOGRAPHIC PLATES BY THE DEEP-ETCH PROCESS. L. E. Lawson and S. D. Winn. Printing Technology, Vol. IV, No. 2, December 1960, pages 59-77, 17 pages. The results obtained by using the deep-etch process of offset lithography are affected by many different variables such as the formulation of the solutions, the atmospheric conditions and the types of positives used. Conclusions reached, as a result of work reported earlier, on the importance of the different variables are given. The formulations of conventional type deep-etch coatings are investigated in some detail, particular attention being paid to the ratio of dichromate to gum, the effect of the pH of the coating solutions, and the Baumé of the solutions. The object of the work was to provide exact information as to the changes in the areas of the half tone dots. 4 Illustrations, 7 tables, 4 references, discussion.

655.325

PLATEMAKING (SHORT CUTS). J. K. Cornell. Photo Methods for Industry - Section Two - November 1960, pp. 30-31, 55 (3 pages). Description of how the duplicating department of a large aircraft company reduced paper work and other costs. First move was to standardize form in which material was submitted. This reduced or eliminated stripping. Material is held on the copy board by vacuum and shot 16 up of 8 1/2 x 11. Plates are exposed on a diazo printer feeding through at 25 ft. per min. Multiliths have been speeded up to as much as 11,000 i.p.h. 7 Illustrations.

655.32

SOME THEORETICAL ASPECTS OF THE LITHOGRAPHIC PROCESS. Grant C. Beutner. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 1-7, 253-255, 10 pages. A brief search of lithographic literature will soon convince one that there is a need for more fundamental

work. At present, strictly speaking, there is no sound theoretical basis for the process itself. It is the purpose of this paper to examine some rudimentary concepts intrinsic to the process. Lithography is, of course, a separation of an oily phase (ink) from an aqueous phase. The process itself is limited by the degree to which these phases remain independent. This degree of independency is governed, in the main, by behavior that can be approximately described in terms of classical thermodynamical theory. Along with this recourse to thermodynamical theory it has been found useful to consider the lithographic process, per se, in terms of probability concepts. Thus, in this paper, we are attempting to define the ink/water separation in the most economical terms possible. This, in the hope that if a mathematical yardstick can be so provided we can further our theoretical and practical studies with a minimum of difficulty.

PAPER AND INK

535.35

*FLUORESCENT COATING COMPOSITION. U. S. Patent 2,956,027 - Filed December 10, 1956, Ser. No. 627,509. James F. Thompson - Assigned to Sterling Drug Co., New York, a corporation of Delaware. Official Gazette, Vol. 759, No. 2, November 11, 1960, page 438. 1. A fluorescent coating composition comprising a substantially colorless varnish having incorporated therein minor proportions by weight of a compound which fluoresces red under ultraviolet light, a compound which fluoresces blue under ultraviolet light, and a compound which fluoresces yellow under ultraviolet light, each of said compounds being substantially colorless in dilute solution by daylight and being in such proportion to each other that the mixture fluoresces white over a white surface under ultraviolet light.
4. A fluorescent coating composition comprising a substantially colorless varnish consisting essentially of a resin and a solvent for said resin, and approximately equal minor proportions by weight of 2-(3-hydroxy-2-naphthyl)-benzimidazole, 4-methyl-7-dimethylaminocoumarin, and 3,7-bis(phenyl-carbamylamino)dibenzothiophene-5,5-dioxide.

655.08

THE MICROSCOPE IN PAPER RESEARCH. B. Clarke. Printing Technology, Vol. IV, No. 2, December 1960, pages 49-53, 5 pages. The scope and value of microscopy. Examination of wood, pulp, paper, critical machine-surfaces and other objects. Normal methods for revealing detail; transmitted and top illumination. Powerful ancillary techniques; replication and metal shadowing. Paper characteristics demonstrated by microscopy; range and details of surfaces; dot formation; paper faults and quality. 14 Photomicrographs reproduced. 4 References.

655.306 : 655.302

THE EVALUATION OF DIFFERENT SETS OF PROCESS INKS. K. H. Schirmer. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 133-47, 267-8, 17 pages. Basing on the theoretical requirements to ink sets for multicolor printing the development of ink sets within the last thirty years is described and the significance of this development studied by means of methods for color measurement. Furthermore, three ink sets commonly in use today are compared and assessed with regard to their color range and processing characteristics. 5 references, 8 diagrams, 3 tables.

535.8

RELATION BETWEEN SURFACE ROUGHNESS AND SPECULAR REFLECTANCE AT NORMAL INCIDENCE. H. E. Bennet, and J. O. Porteus. Journal of the Optical Society of America, Vol. 51, No. 2, February 1961, pages 123-129, 7 pages. Expressions relating the roughness of a plane surface to its specular reflectance at normal incidence are presented and are verified experimentally. The expressions are valid for the case when the root mean square surface roughness is small compared to the wavelength of light. If light of a

sufficiently long wavelength is used, the decrease in measured specular reflectance due to surface irregularities. Long-wavelength specular reflectance measurements thus provide a simple and sensitive method for accurate measurement of surface finish. This method is particularly useful for surface finishes too fine to be measured accurately by conventional tracing instruments. Surface roughness must also be considered in precise optical measurements. For example, a non-negligible systematic error in specular reflectance measurements will be made even if the root mean square surface roughness is less than 0.01 wavelength. The roughness of even optically polished surfaces may thus be important for measurements in the visible and ultraviolet regions of the spectrum. 17 references, 3 graphs.

655.326 : 655.329

WEB OFFSET PAPER PROBLEMS. Anon. National Lithographer 67, No. 10, October 1960, pp. 48,49,54,72,74,76,78 (7 pages). A report on a panel discussion at the 1960 Conference of the Web Offset Section of P.I.A. Questions from the floor, answered by the panel included such topics as control of web tension with coated and uncoated papers; are hickies worse on web than sheet; attitude of paper people toward web offset paper problems; price differential between sheet and roll; blistering of paper on coated stock; slitter dust; two-sidedness of papers, with regard to drying, etc.

655.326

A BENCH TEST FOR PREDICTING THE EFFECT OF THE FOUNTAIN SOLUTION ON PICK AND CURL OF OFFSET PAPERS. Norman J. Beckman. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 49-65, 258-60, 20 pages. In offset lithography, minute quantities of the aqueous fountain solution are transferred to the paper surface from the rubber printing blanket. Two adverse paper reactions to such wetting are:

a. Wet curl; curling of paper sheets on the delivery table due to press moisture transferred to the printed side.

b. Wet pick; in multicolor presses, paper pick in the later units due to softening of surface bonds by press moisture from an earlier color unit.

To study such paper reactions, a test instrument is described which permits controlled wetting of paper specimens at very low levels of water transfer, using the offset gravure principle. The water transfer level and time delay intervals after wetting are extremely critical regarding the bench test for wet curl and wet pick. Such test parameters have been established by correlation studies of paper performance on commercial offset press equipment. The testing instrument and methods for measuring wet curl and wet pick are described in detail. 5 references, 10 illustrations or charts, 6 tables.

676.27

CONVERSION FACTORS FOR THE AIR PERMEABILITY MEASURED BY DIFFERENT INSTRUMENTS. Dr. D. Tollenaar and Dr. A.H.H. Van Royen. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 77-82, 260-261, 8 pages. The air permeability values found by measurements with the Bekk, Schopper and Gurley instruments are interchangeable with the aid of conversion factors. The theoretical factors are derived. Experiments with widely different papers have shown that for most papers the deviations from the theoretical values fall well within the limits of accuracy offered by the Schopper and Bekk tests. The conversion factors are not reliable if very dense papers are measured with the Schopper apparatus, whereas some difficulties are encountered if very loose papers are tested in the Bekk instrument. 2 references, 4 graphs or diagrams, 2 tables.

676.27

SOME EXPERIMENTAL TECHNIQUES FOR STUDYING THE FLUFFING OF PRINTING PAPERS. Evelyn J. Pritchard. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 67-75, 260,

10 pages. The terminology in the literature is confused, and little or no experimental work has been reported. This paper defines fluffing and gives a detailed account of four experimental techniques that have been developed to study the problem. For investigations in printing works a microscopic analysis of the deposit on the offset blanket, preferably in situ, together with an analysis of the paper in use, has proved most valuable. It has been shown that some types of fibre leave the sheet preferentially, and that trouble is caused by the unprinted side of boards and one-side coated paper. A rapid technique for determining the amount of loading in the two surfaces of paper has established a connection between the amount of loading in the side being printed and fluffing. The influence of printing machine variables on fluffing has been made possible by a method of measuring the quantity of fluff on the blanket in the presence of ink during controlled printing runs. Lastly, routine testing of small paper samples has become possible by the use of a fluff tester based on a new principle, i.e., the action of a dry offset blanket on the paper surface, under pressure. 4 diagrams.

655.235

THE CHAMPFLEX COATER. Charles G. Whelpton. TAPPI, Vol. 43, No. 11, November 1960, pages 957-960, 4 pages. One of the more recent developments in the field of coating paper and board is the Champflex coater. In the general category of trailing blade coaters, the Champflex uses a small rotating rod held in a spring mounting. Rotating against the direction of sheet travel, the rod has the ability to doctor coatings without a tendency for foreign particles to lodge behind the blade, causing streaks. The coater is relatively easy to operate, fairly inexpensive to build, and permits simple coating preparation and handling techniques. A single coating application can apply a weight of from 3 to 15 lb. per ream (25 x 38-500) per side at solids ranging up to 65%. The versatility of the Champflex coater is emphasized by its successful use both on- and off-machine, not only to apply pigmented coatings, but also to apply nonpigmented materials which could not be done successfully by other means. 9 diagrams and illustrations.

676.27

A METHOD TO DETERMINE THE DEGREE OF WEB RUB RESISTANCE. F. R. Adams. TAPPI, Vol. 43, No. 11, November 1960, pages 923-927, 5 pages. Wet-rub resistance is a paper characteristic which has been of interest to the industry for many years; but which has been limited in its significance by the highly subjective methods used in its determination. This paper covers the conception and development of a wet-rub test which is entirely objective in nature, highly reproducible, and not limited by the paper coating base. By determining the degree of wet-rub resistance it is possible not only to separate the "blacks" from the "whites," but also to arrange the "grays" in sequential order. The simplicity of this test lends itself to routine control functions as well as the developmental uses indicated by its precision. 11 charts and illustrations, 6 references.

655.08

A REFLECTION DENSITOMETER HEAD FOR THE CONTROL OF INK AMOUNTS ON PROOFS. Harry H. Hull. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 149-58, 269-70, 12 pages. A reflection head has been designed for use with the "Densichron" which will enable proofers to exercise closer control of the amount of ink used in proofing letterpress 4-color engravings. This head minimizes change in reflection density on drying by using polarized light and efficient control of scattered light. This should help solve one of the major problems of the printer who has to print two or more subjects in line which have been proofed at different times. 6 illustrations or diagrams, 2 tables.

655.306 : 655.07

TECHNIQUE FOR MEASURING HIGH-SPEED INK FILM TRANSFER. Allen E. Yelmgren. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 21-25, 256-7, 7 pages. Average hand-proofing

speeds are in the order of 200 Ft. - 300 Ft. per minute. Press speeds will be five times as fast. The problem is whether ink transfer data obtained on a proof press are representative of that obtained at conventional printing speeds. A method for measuring ink transfer is described and results listed for press speeds from 50 ft. - 1,200 ft. per minute. 5 illustrations, 3 references.

LITHOGRAPHY - GENERAL

655.326

PLATE CARE AND PROBLEMS - No. 25 - The How and Why of Carton Lithography. John Jachimiec. Boxboard Containers 78, No. 815, November 1960, pp. 22-24 (3 pages). A list of 9 rules for running litho plates is given and each point is discussed. The 9 rules cover (briefly abstracted here): 1) Plate packing; 2) Blanket packing; 3) Ink roller setting; 4) Dampener setting; 5) Fountain solution; 6) and 7) Proper ink control; 8) Fountain solution control and 9) Press cleanliness.

655.303

CHECKPOINTS FOR ERRORS - Part 8 - "Stripping For Profit." Elizabeth Parker. National Lithographer 67, No. 11, November 1960, pp. 45,64 (2 pages). It is necessary to recognize that mistakes do occur, especially in rush work, and plan to catch them. Good instructions, lack of interruptions, avoidance of haste are some pointers given. Others cover methods of checking for errors. 1 Illustration.

655.329

WEB OFFSET PRESS PROBLEMS. Anon. National Lithographer 67, No. 11, November 1960, pp. 40,66,92,94,96,98 (6 pages). Report of a panel discussion given in question-answer form. Questions covered included register control, flying paster, drives, register motors, grater roller adjustments, progressive paper stretch, jam-ups due to clogged cylinder cavities when pasting, how close to the core can you run, folder troubles, paper severing devices to prevent jam-ups at web break.

655.322

PRINTING SEQUENCE IN LITHOGRAPHIC PROCESS COLOUR WORK. L. E. Lawson. Printing Technology, Vol. IV, No. 2, December 1960, pages 79-91, 12 pages. The use of pigments in inks introduces departures from the ideal equality of inks. The largest factor is probably scatter within the layer. The three process colors can be printed in six different orders. An experiment is described in which five of these were investigated by printing a prepared subject consisting of a solid. 24 hours were allowed between separate printings. Results indicated that the yellow should be printed early, and the magenta printed within the closest tolerances. 7 Illustrations. Discussion

655.303

DEVELOPING GOOD WORKING HABITS - Part 7 "Stripping For Profit." Elizabeth Parker. National Lithographer 67, No. 10, October 1960, pp. 52,53, & 120 (3 pages). This installment is devoted largely to corner marks, register marks and register. Specific suggestions are given.

GRAPHIC ARTS - GENERAL

655.339 : 655.309

WEB TENSION RESEARCH ON ROTOGRAVURE PRESSES. Harvey F. George and John J. Kimball. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 9-20, 255-257, 15 pages. Full width or unit type tensiometers may be used for dynamic measurement of web tension on rotogravure or other web fed presses. Calibration and interpretation of quantitative results obtained with tensiometers measuring unit tension in lbs./inch directly must

consider the effects of calibrating web widths, hysteresis or memory effect of paper under repeated stressing and the effect of moisture content on paper elastic properties among other things. Qualitative tension measurements made with unit tensiometers on rotogravure presses show that variation in tension setting at the reel influences web tension at all press units including those past the first impression. Tension variations exist during normal press operation of both low and high frequency natures and extreme tension disturbance occurs during paster cycles. These and other tension disturbances pass through the press in the direction of web travel and are definitely correlated with color misregister. More research is needed for a better understanding of these phenomena and to achieve the desired improvement in web press performance.

772.93

*ZEROGRAPHY. U. S. Patent 2,955,938 - Filed August 1, 1955, Ser. No. 525,496. Frank A. Steinhilper - Assignor to Haloid Zerox Inc., a corporation of New York. Official Gazette, Vol. 759, No. 2, October 11, 1960, page 419. 1. The method of sensitizing a xerographic plate comprising a self supporting film of photoconductive insulating material prior to exposure and image formation in xerography, said method comprising applying a first polarity corona generated electrostatic charge to a first surface of the photoconductive insulating film while said photoconductive insulating layer is uniformly illuminated by radiation which causes said film to become electrically conductive and while an electric filed is applied through said film in a direction to move electrostatic charge directed to said first surface to the opposite and second surface of said photoconductive insulating film, said charge moved to said second surface being maintained at said second surface through the absence of any electrode in electrical contact therewith, and then in the absence of illumination of said photoconductive insulating film applying a second and opposite polarity corona generated electrostatic charge to said first surface of said photoconductive insulating film forming a sensitive xerographic plate with said first polarity charge at said second surface and said second polarity charge at said first surface of said photoconductive insulating film.

655.309

*AUTOMATIC REGISTRY CONTROL SYSTEM AND METHOD FOR PRINTING AND CUTTING A WEB. U. S. Patent 2,963,965. John B. Baumgartner, Assignor to Mercury Engineering Corp., a corporation of Wisconsin. Official Gazette, Vol. 761, No. 13, December 13, 1960, pages 365-366. 1. Apparatus including a printer and a cutter to print and then cut a single web, feed rolls for metering a fixed length of web to said cutter for each cut thereof, a running register for adjusting said printer, a reversible correction motor connected to said register for advancing or retarding said printer; and a registry control system for operating said motor and comprising a phase detector cooperating with said cutter for determining the position of the latter, and a web scanner located behind said printer for cooperating with the printed matter placed on said web by said printer, said system detecting deviation between said cutter and printer from true register and supplying corrective increments of power to drive said motor in a correcting direction.

655.07 : 655.08

PIEZOELECTRIC MEASUREMENT OF PRINTING PRESSURE. Lars S. Nordman; Rolf Ginman; Goran Olofsson; and Veijo Eravuo. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 27-36, 257-8, 11 pages. There has been constructed a piezoelectric pressure sensitive element built into a printing plate. The sensing part of the element is small in comparison with the width of the zone of pressure in the nip. This renders it possible to study the pressure distribution in the nip as well as the maximum printing pressure. A description is given of the design of the pressure sensitive printing plate, and of the electrical system for recording the pressure curves. The device has been used together with a Vandercook no. 4 proof press to investigate the relationship between the printing pressure and the packing material and packing thickness of the impression

cylinder, the uniformity of the pressure and its dependence on the formation of the paper to be printed. 11 references, 7 diagrams or graphs, 3 tables.

655.312 : 655.07

SOME EXPERIENCE OF THE SUBJECTIVE EVALUATION OF QUALITY OF BLOCKS AND PRINTS. G. E. Carlsson. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 83-92, 261, 11 pages. By subjective evaluation a jury of photo-engravers ranked a number of halftone blocks, made from the same photographic original, in quite another order than printers, who printed the same blocks. The material was studied at the Graphic Arts Research Laboratory, where pair comparison was used in ranking several different sets of prints, but nor in this way any correlation was found with the photo-engravers' evaluation. From thorough microscopic studies of the blocks and the prints it seemed probable that certain faults in the dot formation, specially connections in the highlights and too small pinholes in the shadows had effected the rejection of the low-ranked prints. 4 illustrations or charts, 9 tables.

655.07 : 655.312

INVESTIGATIONS OF THE FILLING UP OF HALFTONE PLATES IN LETTERPRESS PRINTING. A. Arnamo. TAGA, 11th Annual Meeting, June 15-17, 1959, pages 93-107, 261-62, 17 pages. A series of experimental letterpress printing runs has been performed of the Graphic Arts Research Laboratory in Sweden and the effect on the filling up of shadows in halftone plates of the following variables was investigated: number of sheets printed, screen ruling and etching depth of the plates, amount of ink on the plates, ink viscosity, printing pressure, type of inking rollers and setting of inking rollers. Printing press, printing speed and paper were the same during all runs and temperature as well as relative humidity were strictly controlled. These experiments which, however, may not be looked upon as concluded have shown that the amount and viscosity of the ink have an appreciable effect on the filling up of the shadows whereas the influence of the printing pressure and the inking roller wetting is remarkably little. Inking rollers of various material caused quite different amount of filling up, but it has not yet been studied, which properties of the rollers cause this difference. Relatively small differences in etching depth had under certain circumstances a marked effect on the amount of filling up. It was evident that most of the variables studied have no main effects, but apparently rather complicated interactions exist between them. 10 illustrations or diagrams.

655.7 : 655.315 : 655.309

COLOUR REGISTER CONTROL. Earl C. Brown. Printing and Graphic Arts No. 13, November 1960, pp. 11-15 (5 pages). Report on color register problems in the letterpress printing of long run magazines. Much of the problem related to the making of duplicate plates. Paper web controls are also discussed.

655.5

HOUSE ORGANS FOR EXTRA PROFIT. Philip Grant. The Lithographer and Offset Printer 56, No. 11, November 1960, pp. 15-17 (3 pages). Suggestions as to how a printer can undertake the publication of house organs. Part time or free-lance editors, artists, etc. can be used for the purpose.

655.83

AUTOMATION FROM COIL TO CLOSURE. Neal D. Rader. National Lithographer 67, No. 10, October 1960, pp. 95-97 (3 pages). Description of new facilities at the Richmond Works of the Aluminum Co. of America. Much of the story is on new mechanized sheet handling equipment developed by Dexter, particularly in the removal of sheets from the drying oven. The non-magnetic character of the aluminum posed problems which were overcome by use of vacuum. 4 Illustrations.

655.313

LETTERPRESS IMPOSITION AND LOCKING-UP FOR BEGINNERS - Part I. Anon. Asian Printer, Vol. 3, No. 3, 1960, pp. 68-71 (4 pages). Emphasis is placed on the importance of good imposition in cutting down time for the press. The equipment used is described and illustrated. 6 Illustrations.

655.07

JOINT RESEARCH WORK IN JAPAN. Masatoshi Matsuo. Asian Printer 3, No. 3, 1960, pp. 64-67 (4 pages). The Graphic Arts Research Association of Japan inaugurated in 1955 has as members 160 printing, platemaking and paper converting companies; 60 supply companies (including paper mills) and 31 newspapers. Objectives in research and technical service are listed, as well as some 22 subjects already reported on and 4 projects currently going on. A certain amount of projected work will be carried out in member plants or university laboratories. The scope of work covered is: A. Letterpress Printing; B. Newspaper Printing; C. Lithographic Platemaking; D. Camera work in general; E. Lithographic Printing, Paper and Ink; F. Gravure in general and special printing; G. Electronic Platemaking; H. Consulting; I. Analytic experiments and color. 4 Illustrations.

655.07

PRINTING TRADE SCIENTISTS. Frank DeWitt. Printing and Graphic Arts, No. 12, October 1960, pp. 22-23 (2 pages). Probably no industry needs scientifically trained personnel more than the printing industry. Yet, probably, no industry has been less aware of the need for such people. This need is discussed from the standpoint of the physicist, chemist, mathematician and electronic engineer.

655.34

THE COLLOTYPE PROCESS. A. Hammer. Printing and Graphic Arts, No. 12, October 1960, pp. 4-7 (4 pages). Other names for the process are photo gelatin, phototype, albertype, heliotype, and artotype. The process is 100 years old, relatively simple and gives results unsurpassed by any other printing process. Some history is given. The basic principles of the swelling of bichromated gelatin as controlled by exposure to light are explained and details of the process given.

655.312

QUALITY FACTORS IN POWDERLESS ETCHING. Eric A. Williams. The British Printer 73, No. 11, November 1960, pp. 103-105 (3 pages). These are broken down into: (1) Metallurgy; (2) Mechanical; (3) Chemistry and (4) Operating Techniques. The first involves some properties of zinc and magnesium, and burning-in temperatures. The necessary factors in a machine are pointed out. Chemistry is most complex, involving a controlled emulsion balance. Nitric acid is variable in this which involves careful measurement and adjustment. Operation involves balancing a number of the previous factors by machine settings and involves considerable skill. 4 Illustrations, one an example of powderless engraving in color.

655.303

ARTIST'S AIDS IN THE PREPARATION OF COPY FOR PHOTOENGRAVING. Frederick W. Mackenzie. The British Printer 73, No. 11, November 1960, pp. 99,100,102 (3 pages). Some weaknesses of art for reproduction are pointed out. Most artists are willing to help out. Efforts to limit his palette to what can be reproduced have not been successful. Some of the aids mentioned include the Bourges Colotone Process; Fluorographic 'drop-out'; tint laying; Letterphot, Fototype and other lettering aids. Illustrations of operations and a color print illustrating drop-out.

655.312

PROGRESS REPORT ON ELECTRONIC ENGRAVING. Brian Innes. The British Printer 73, No. 11, November 1960, pp. 92-96,98 (6 pages). Electronic engraving machines break down into scanning unit, computer, engraver. A little background on the development of each of these is given. From this the author carries over into the present state of development of these phases of the current equipment available. This includes the Fairchild Scan-A-Graver and Scan-A-Sizer, the Hell Klischograph and Vario-Klischograph, the Elgrama, and the new Russian Reproelectronic. Each model of each make is discussed at some length giving data on adjustments, sizes, screens, materials engraved, etc. The Russian Repromatic is very similar to the Swiss Elgrama machine. Engraving of an opaque covered plastic to get screened negatives or positives for printing litho on powderless plates is mentioned. 5 halftone illustrations, a 4 color print and a table of comparative specifications are given.

616.51

OCCUPATIONAL SKIN DISEASES - Prevention and Protection. Dr. W. Schweisheimer. Print In Britain 8, No. 7, November 1960, p. XXVI (1 page). Prevention and protection are discussed for those in contact with printing inks and solvents, also chromic acid and chromium compounds.

655.309

PRINT INSPECTION ON ROTARY PRESSES. Anon. Print in Britain 8, No. 7, November 1960, p. 200 (1 page). Brief description of a viewer for a printed web travelling at speeds up to 1,000 ft. per min. 1 Illustration.

655.89

NEW METHOD PRINTS BRAILLE ON SURFACE OF PAPER INSTEAD OF INDENTING PAGE. Anon. Printing World 167, No. 19, November 9, 1960, p. 530 (1 page). The Royal National Institute for the Blind has perfected a new method of printing Braille. Dots are uncrushable, can be printed on thinner paper, reducing bulk almost one-half. Method bakes onto the paper a solid dot of plastic ink. Details are given on printing, trimming, ink, control of static, and selection of paper are given.

655.02

LIGHTING IS SO IMPORTANT - In Steps Towards Efficiency. Anon. Printing World 167, No. 24, December 14, 1960, pp. 701, 710 (2 pages). Discussion of desirable illumination levels for various types of work in a printing plant. A table gives recommended illumination in foot-candles.